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MONTANA WATER SUPPLY OUTLOOK

Snowpack and Streamflow Forecasts as of

March 1, 1983

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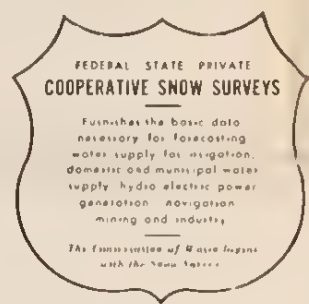
Winter storms by-pass Montana

Most storms during February continued to travel both south and north of Montana. Nearly all mountainous areas continue to show less than average water stored in the snowpack.

In some parts of central Montana, the snowpack is only two-thirds of average. The Red Rock River drainage in the extreme southwestern corner is the only area having above average snow. This area has been receiving moisture from the edge of major storms tracking south of Montana.

Many low elevation areas and south-facing slopes are bare of snow, and soils in foothills and lower elevations are becoming frost-free. Mountain snowfall during the next 2 months will be very critical to Montana's spring and summer water supply.

The Montana Water Supply Outlook is a publication of the U.S. Soil Conservation Service. The SCS administers the Cooperative Snow Survey Program in cooperation with other federal, state and private agencies, organizations, and individuals.



The report is prepared by SCS, Snow Survey and Water Supply Forecast Staff, P.O. Box 98, Bozeman, Montana.

Warm winter

Preliminary information provided by the National Weather Service indicates that some locations in south central Montana and adjacent areas in Wyoming had the warmest winter (December, January and February) on record. The area east of the Divide was not the warmest of record but was well above normal. Most stations averaged 10 to 15 degrees (F) above long-term normals. Temperatures west of the Divide had somewhat less departure but were still above the long-term normals.

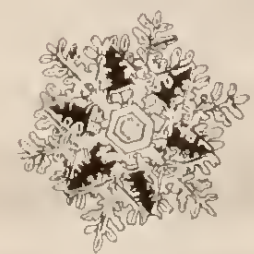
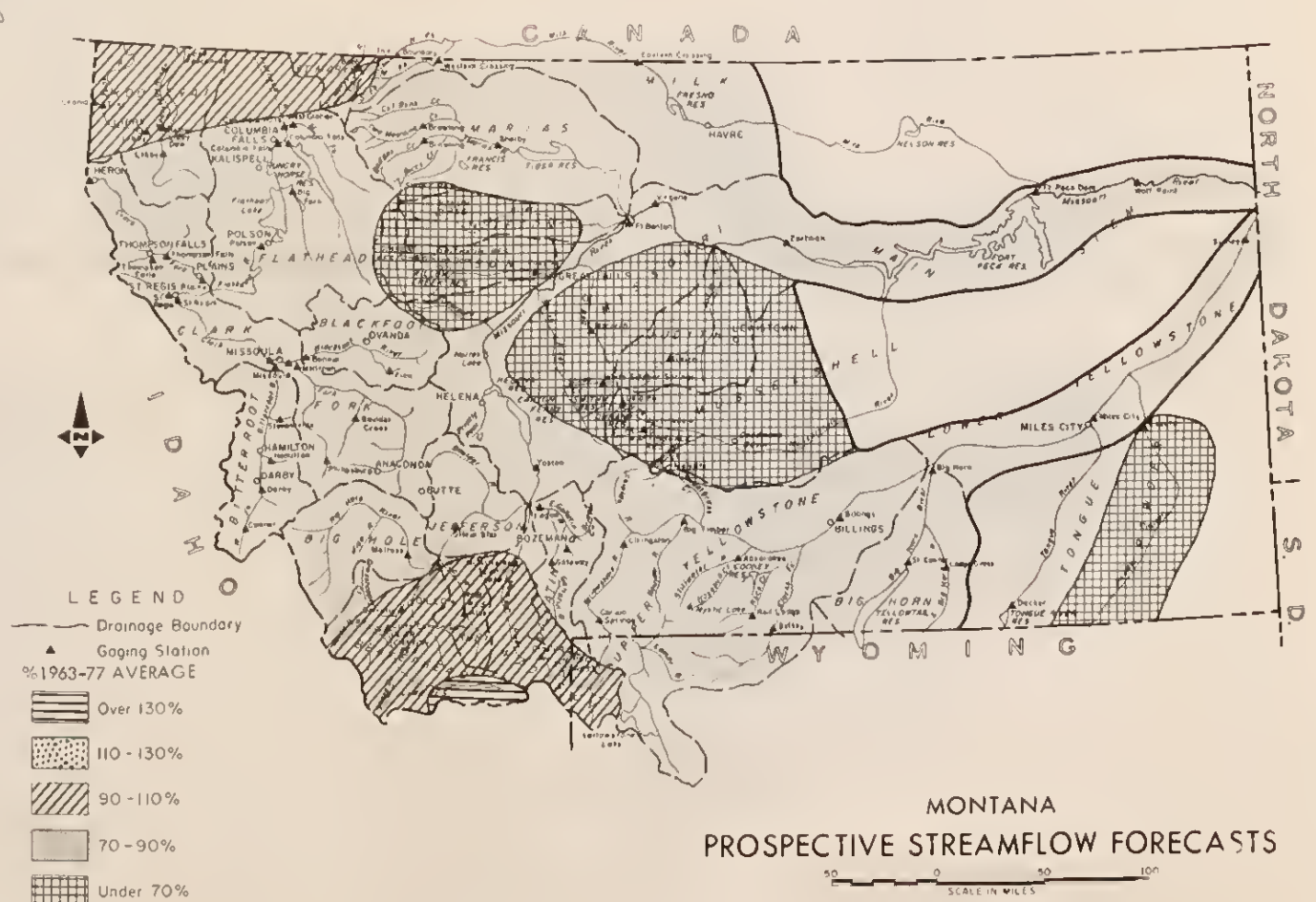
Most Montanans will agree that this has been "one of the best winters ever" for temperatures and valley snowfall.



Streamflow forecasts below average

The southwest and northwest corners of the state will have near average runoff this spring and summer. The central part of the state is predicted to have very low runoff.

Irrigation water shortages are expected to develop by late June to early July in most areas. The severity of these shortages will be very dependent on mountain snowfall in the next 2 to 3 months and weather patterns developing the remainder of this season.



Yellowstone River Drainage

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR		PAST RECORD		THIS YEAR		PAST RECORD	
	FORECAST		THOUSANDS OF CUBIC FEET		FORECAST		THOUSANDS OF CUBIC FEET	
	Thousand Acres Feet	Percent of Average	Last Year	Average	Thousand Acres Feet	Percent of Average	Last Year	Average
PERIOD	April - September				April - July			
YELLOWSTONE RIVER at Corwin Springs	1865	89	2497	2,102	1560	89	1978	1,749
YELLOWSTONE RIVER near Livingston	2125	86		2,471	1770	86		2,048
BOULDER RIVER at Big Timber	340	82		416	310	81		382
STILLWATER near Absarokee (1)	565	86		660	480	86		555
CLARK'S FORK RIVER near Belfry	512	80		644	450	80		564
ROCK CREEK near Red Lodge	Streamflow measurements		118		discontinued by USGS			91.4
INFLOW COONEY RESERVOIR near Boyd (2)	56.5	88		64.5	46.0	88		52.5
YELLOWSTONE RIVER at Billings	4060	87	5171	4,682	3420	86	4307	3,979
BIGHORN RIVER near St. Xavier (3)	1645	81	2116	2,034	1510	81	1693	1,861
LITTLE BIGHORN RIVER near Hardin	165	84	112	196	145	83	96.6	174
TONGUE RIVER near Decker	224	78		288	204	78		263
YELLOWSTONE RIVER at Miles City (4)	5710	80		7,142	5000	80		6,243
POWDER RIVER at Moorhead	174	69		253	162	69		234
YELLOWSTONE RIVER near Sidney (5)	6245	80		7,806	5440	80		6,805



- (1) Adjusted for storage in Mystic Lake
- (2) Adjusted for storage in Cooney Reservoir.
- (3) Adjusted for storage in Buffalo Bill, Boysen, Bull Lake, Pilot Butte and Bighorn Reservoirs.
- (4) Adjusted for storage in Bull Lake, Buffalo Bill, Boysen, Pilot Butte, Bighorn and Tongue River Reservoirs.
- (5) Adjusted for reservoirs shown in (4) and diversions into the Lower Yellowstone Canal.

ALL FORECASTS PREPARED IN COOPERATION
WITH THE NATIONAL WEATHER SERVICE

WATER SUPPLY OUTLOOK

Expressed as "Poor, Fair, Average, Excellent" With Respect to Usual Supply

STREAM or AREA	Flow Period	
	Spring Season	Late Season
Yellowstone at Livingston	Avg	Poor
Shields	Fair	Poor
Boulder	Fair	Fair
Sweetgrass - 8ig		
Timber	Fair	Poor
Stillwater	Fair	Fair
Rock Creek	Fair	Fair
Clark's Fork	Fair	Fair
Yellowstone above Bighorn	Fair	Fair
Bighorn	Fair	Fair
Little Bighorn	Fair	Fair
Tongue	Fair	Poor
Powder	Fair	Poor
Lower Yellowstone	Fair	Fair

Runoff forecast below average

Spring and summer runoff is forecast to be 10 to 15 percent less than average on the Yellowstone River and upstream tributaries. The Bighorn River and downstream tributaries will have even less runoff.

Early season runoff will be below average due to low elevation snowpack shortages. Streamflows will also begin to drop earlier than normal due to below average high elevation snowpack.

Irrigation water supply shortages will develop by late June and July and continue through the irrigation season. The overall impacts of these shortages will be very dependent on the snowfall received over the next 2 to 3 months.

Irrigators that do not have stored water and that have later water rights may want to consider their cropping patterns or utilizing other alternatives to minimize the impacts of a short water supply.

Yellowstone snowpack remains low

All headwater areas have below average snowpack. Most drainages show only two-thirds to three-quarters of the average amount of water stored in their snowfields.

Most of the drainages above the Bighorn River have snowpack percentages similar to those reported last month, while those in Wyoming have decreased.

South-facing slopes and lower elevation areas have little or no snow remaining. Soils are thawing and will soon be able to absorb rainfall and snowmelt.

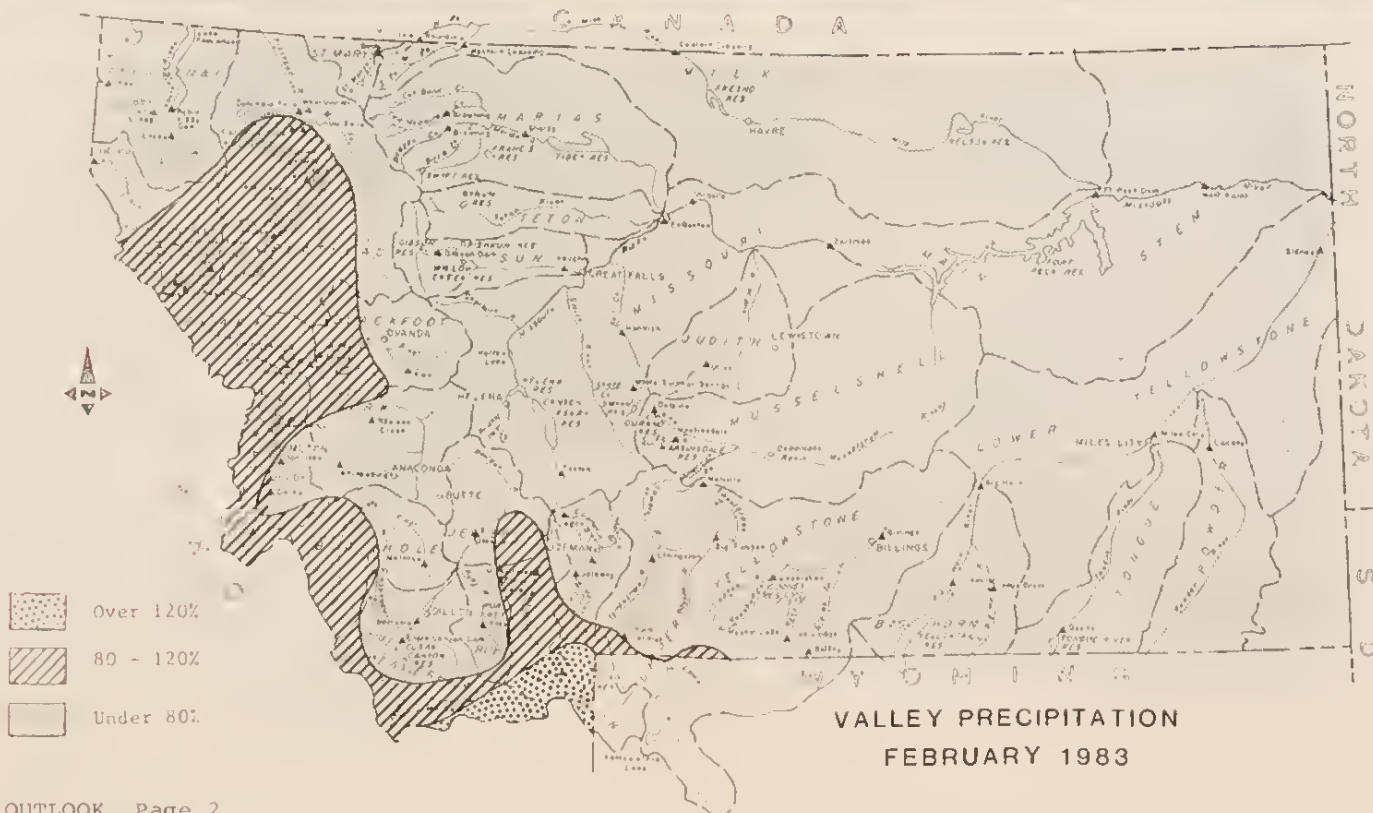
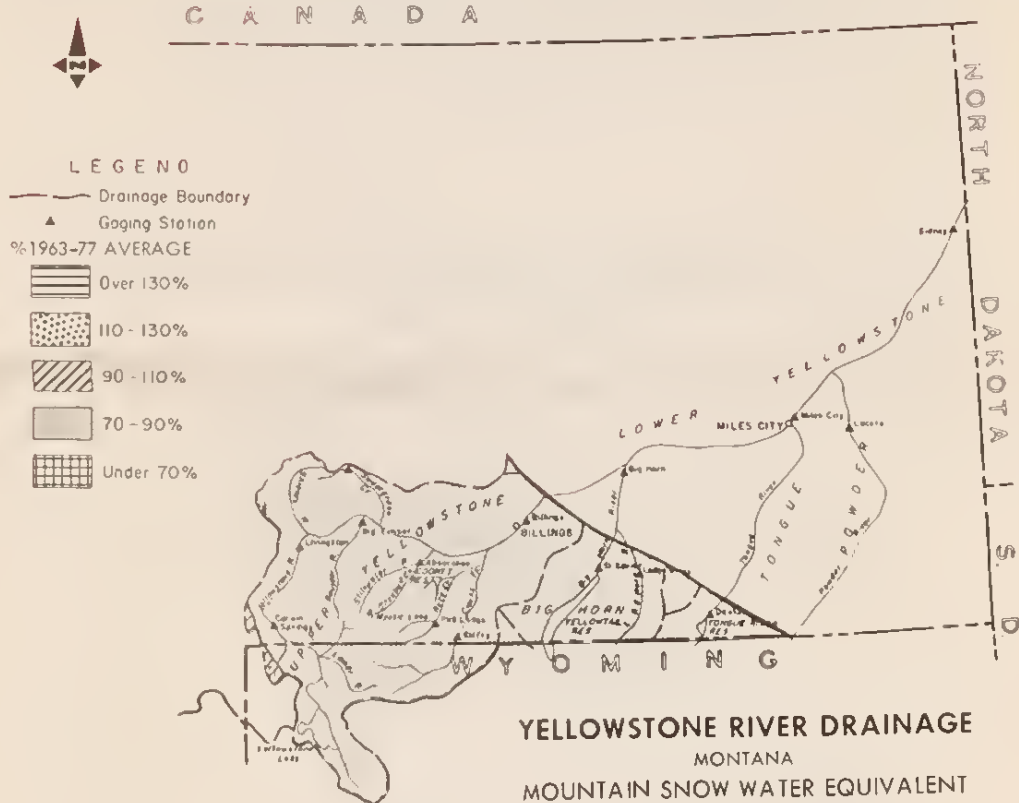
Snowfall during the next 2½ months will be very significant in determining the season's water supply. Continuation of present weather trends could mean water shortages in many areas.

SUMMARY of SNOW MEASUREMENTS

RIVER BASIN and/or SUBWATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average
Upper Yellowstone			
ab Livingston	21	75	76
Shields	8	87	74
Boulder & Stillwater	4	73	66
Rock Creek & Clark's Fork	17	90	82
Yellowstone (ab Bighorn River)	50	81	77
Bighorn/Wyoming	26	79	79
Little Bighorn	3	128	81
Bighorn (Total)	29	82	79
Tongue	5	113	83
Powder	6	94	79
Yellowstone (Total)	90	84	79

YELLOWSTONE RIVER DRAINAGE MONTANA

MOUNTAIN SNOW WATER EQUIVALENT



VALLEY PRECIPITATION
FEBRUARY 1983

Source: NWS
Great Falls, MT

Missouri River & Hudson Bay Drainages

STREAMFLOW FORECASTS

BASIN, STREAM NO. or FORECAST POINT	THIS YEAR		PAST RECORD		THIS YEAR		PAST RECORD	
	FORECAST		THE 1911-1940 AVERAGE		FORECAST		THE 1911-1940 AVERAGE	
	Thousand Acres Feet	Percent of Average	Thousand Acres Feet	Percent of Average	Thousand Acres Feet	Percent of Average	Thousand Acres Feet	Percent of Average
PERIOD	April - September				April - July			
RED ROCK RIVER near Monida (1)	129	117	150	110	123	119	135	103
BEAVERHEAD RIVER near Grant (2)	179	105	228	171	160	108	194	148
BEAVERHEAD RIVER at Barratts (2)	230	102		226	202	103		196
RUBY RIVER near Alder	105	100		105	90.0	101		89.0
8IG HOLE RIVER near Melrose	650	82		792	600	82		730
BOULDER RIVER near Boulder	Streamflow measurements discontinued							
WILLOW CREEK near Harrison	19.9	93		21.5	18.0	94		19.2
MADISON RIVER near Grayling (3)	526	101	584	523	416	102	456	409
MADISON RIVER near McAllister (4)	855	96	1024	892	686	97	797	706
GALLATIN RIVER near Gateway	490	86	592	572	422	86	503	488
INFLOW MIDDLE CREEK RESERVOIR near Bozeman (5)	22.7	75		30.3	19.6	75		26.2
HYALITE CREEK near Bozeman (6)	35.8	76		47.4	31.2	76		41.0
GALLATIN RIVER at Logan	470	72		649	412	74		557
MISSOURI RIVER at Toston (7)	2230	83	3470	2,671	1940	83	3072	2,330
SHEEP CREEK near White Sulphur Springs	14.0	61	24.5	22.8	12.0	61	21.0	19.8
SUN RIVER at Gibson Dam (8)	355	61	596	580	320	60	544	529
8ELT CREEK near Monarch	83.0	57		146	75.0	56		134
MISSOURI RIVER at Fort Benton (9)	3185	77		4,148	2800	77		3,640
TWO MEDICINE CREEK near Browning (10)	190	73		259	180	74		244
8ADGER CREEK near Browning	95.0	71		133	81.0	70		116
MARIAS RIVER near Shelby	402	70	521	577	372	70	494	532
MISSOURI RIVER at Virgelle (11)	3615	75		4,793	3180	75		4,238
MISSOURI RIVER near Landusky (11)	4000	77		5,214	3520	77		4,586
NORTH FORK MUSSELSHELL RIVER near Delpine	3.2	50		6.4	2.7	49		5.5
SOUTH FORK MUSSELSHELL RIVER above Martinsdale	30.5	50		61.5	29.0	50		57.6
MISSOURI RIVER below Fort Peck Dam (11)	3700	75		4,929	3290	75		4,381
MILK RIVER at Eastern Crossing*	269	97		278				
MILK RIVER at Eastern Crossing (12)*	88.8	80		111				
INFLOW LAKE SAKAKAWA, ND (11)	10360	77		13,450	9430	77		12,239
SASKATCHEWAN RIVER BASIN								
SWIFTCURRENT CREEK at Sherburne (13)	126	95	133	132	109	95	117	115
ST. MARY'S RIVER near Sabb (13)	476	96		498	411	96		426

*March-September forecast

- (1) Adjusted for storage in Lima Reservoir.
- (2) Adjusted for storage in Lima and Clark Canyon Reservoirs.
- (3) Adjusted for storage in Hebgen Lake.
- (4) Adjusted for storage in Hebgen Lake and Ennis Lake.
- (5) Sum of West Fork Hyalite Creek and East Fork Hyalite Creek above the Reservoir.
- (6) Adjusted for storage in Middle Creek Reservoir.
- (7) Adjusted for storage in Lima, Hebgen, Ennis & Clark Canyon Reservoirs.
- (8) Adjusted for storage in Gibson Reservoir & diversions.

- (9) Adjusted for storage in Lima, Clark Canyon, Hebgen, Ennis, Gibson, Pishkun, Willow Creek & Canyon Ferry Reservoirs.
- (10) Adjusted for storage in Two Medicine Reservoir & diversions in Two Medicine Canal.
- (11) Adjusted for all upstream reservoirs.
- (12) Flow at Eastern Crossing minus St. Mary's Canal.
- (13) Adjusted for storage in Lake Sherburne.

ALL FORECASTS PREPARED IN COOPERATION WITH THE NATIONAL WEATHER SERVICE

WATER SUPPLY OUTLOOK

Expressed as "Poor, Fair, Average, Excellent" With Respect to Usual Supply

STREAM or AREA	Flow Period	
	Spring Season	Late Season
Beaverhead	Avg	Avg
Ruby	Avg	Avg
8ig Hole	Avg	Fair
8oulder	Avg	Fair
Jefferson	Avg	Fair
Madison	Avg	Avg
Gallatin	Avg	Fair
West-Side Missouri	Avg	Fair
Smith-8elt	Fair	Poor
Sun	Fair	Poor
Teton	Fair	Fair
Marias	Fair	Fair
Judith	Fair	Poor
MussellsheII	Fair	Poor
Milk	Fair	Fair
8ear Paws	Fair	Fair
St. Mary's	Avg	Avg

Missouri runoff below average

Runoff during the coming spring and summer will be below average in most areas. Only the drainages in southwest Montana and the St. Mary's River, originating in Glacier National Park, have near average runoff forecasted.

All other streams will have lower than normal early season flows due to lack of low elevation snow. Streamflows will start dropping earlier than usual due to higher elevation snow shortages. Irrigation water supply shortages will begin developing by late June and early July continuing through the irrigation season.

The extent and severity of these shortages will be very dependent on the mountain snowfall over the next 2 months.

Irrigators not having stored water and with late water rights should consider alternatives that will minimize the impacts of deficient water supplies.

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUBWATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average
Beaverhead	23	92	102
Ruby	11	97	102
8ig Hole	21	73	89
8oulder	13	81	80
Jefferson	68	84	95
Madison	33	93	99
Gallatin	23	87	82
Missouri Headwater	124	88	93
West-side Missouri (Toston-Cacade)	9	81	78
Smith-8elt-Arrow	13	68	67
Missouri Main-stem	22	72	70
Teton & Sun	10	57	63
Marias	4	65	68
Marias-Teton-Sun	14	60	65
Judith-MussellsheII	14	74	68
Milk	7	56	61
8ear Paws	6	43	42
Missouri (Total)	174	83	86

Saskatchewan

St. Mary's	3	85	87
8ow River in Alberta	11	91	84

Snowpack percentages drop

The warm and dry weather pattern of January has continued into February. The snowpack percentages have decreased this past month in most areas.

The present snowpack varies from near average in the extreme southwest to about two-thirds average in the headwaters of most drainages flowing into the Missouri River below Three Forks. Low elevations and south-facing slopes continue to have little or no snow cover due to mild temperatures. Soils in some areas have thawed or are close to thawing.

The amount of snowfall deposited on the mountain watersheds over the next 2 months will be very critical in determining this season's potential water supply. If present weather patterns continue, mid and late season water supplies will be critical in many areas.



SNOW SURVEY DATA

SNOW March 1, 1983

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Elevation				Last Year	Average
ABUNDANCE LAKE	8800	2/25	52	15.9	22.2	18.9
AMBROSE	6480	2/22	35	9.4	12.7	11.9
ARCH FALLS	7350	2/28	31	7.8	10.4	11.2
ASHLEY DIVIDE	4820	2/25	19	4.8	7.6	-
ASHLEY LAKE	4000	2/25	17	4.9	6.5	-
BADGER PASS	6900	2/23	66	24.3	38.0	36.7
BADGER PASS PILLOW	6900	2/23	SP	20.9	34.2	-
BALD EAGLE PEAK	5700	2/25	106	42.9	59.2	56.1
BALD RIDGE	7500	2/24	32	8.6	10.3	11.5
BANFIELD MOUNTAIN	5600	2/25	55	20.3	24.2	22.9
BANFIELD MOUNTAIN PILLOW	5600	2/25	SP	18.1	21.3	19.4
BARRE CREEK	5500	2/24	97	38.9	45.4	43.8
BARRE MIDWAY	4600	2/24	83	30.6	34.1	34.0
BARRE TRAIL	3800	2/24	14	4.8	8.6	10.0
BARKER LAKES PILLOW	8250	3/01	SP	14.6	13.2	-
BASIN CREEK	7180	2/25	29	7.4	8.6	7.0
BASSON CREEK PILLOW	7180	3/01	SP	6.1	7.2	-
BASSOO PEAK	5150	3/01	21	7.2	7.7	9.6
BEAGLE SPRINGS	8850	2/26	31	7.0	9.7	-
BEAGLE SPRINGS PILLOW	8850	3/01	SP	5.9	8.7	-
BEAR BASIN	8150	2/22	58	16.2	19.1	19.5
BEAR PAW SKI AREA	5200	2/28	12	3.8	6.4	6.3
BEAVER LAKE	5900	2/23	41	13.4	23.4	21.9
BERRY MEADOW	7300	2/28	22	6.2	7.8	7.2
BIG COULEE	5100	2/28	15	4.3	-	6.2
BIG CREEK	6750	2/23	100	38.3	38.6	39.4
BIG SKY	7700	2/28	50	12.6	15.2	13.8
BIG SKY MEADOW	6350	2/22	35	7.8	9.8	8.6
BIG SNOWY	7150	2/22	44	12.5	13.8	19.0
BLACK BEAR	7950	2/24	103	39.7	44.4	35.1
BLACK BEAR PILLOW	7950	2/24	SP	32.4	38.8	32.2
BLACK MOUNTAIN	7750	2/23	38	11.2	14.0	-
BLACK PINE	7100	2/24	31	9.0	14.4	13.2
BLACK PINE PILLOW	7100	2/24	SP	8.6	15.1	13.8
BLOODY DICK	7600	2/24	37	10.5	16.7	12.9
BLOODY DICK PILLOW	7600	2/24	SP	9.3	14.2	-
BLUE LAKE	5900	2/23	48	17.0	24.2	25.9
BOTS SOTS	8000	2/23	26	5.8	5.0	6.6
BOULDER MOUNTAIN	7950	2/23	46	14.4	18.0	17.1
BOULDER MOUNTAIN PILLOW	7950	3/01	SP	16.8	20.0	-
BOX CANYON	6670	2/25	26	7.2	10.6	12.1
BOX CANYON PILLOW	6670	3/01	SP	5.3	7.2	-
BOXELDER CREEK	5100	2/28	18	5.6	-	6.8
BRANHAM LAKES	8850	2/28	80	25.2	29.8	26.2
BRIDGER BOWL	7250	2/24	54	16.5	20.1	24.9
BRIDGER BOWL PILLOW	7250	2/24	SP	15.6	19.1	23.7
BRISTOW CREEK	3900	2/25	24	9.0	12.2	12.6
BRUSH CREEK TIMBER	5000	2/28	27	7.6	10.0	9.5
BULL MOUNTAIN	6600	2/24	21	5.8	6.2	4.9
CABIN CREEK	5200	2/26	11	3.2	6.3	6.6
CALL ROAD	8050	2/25	39	10.2	9.2	10.2
CALVERT CREEK	6450	2/25	37	9.6	13.3	11.4
CALVERT CREEK PILLOW	6450	2/25	SP	7.6	11.2	9.5

SNOW March 1, 1983

DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Elevation				Last Year	Average
FLATTOP MOUNTAIN PILLOW	6300	3/01	SP	39.1	41.9	44.5
FLEECER RIDGE	7500	2/24	30	8.4	12.0	10.1
FOOLHEN	8280	2/25	43	12.0	16.7	15.6
FOUR MILE	6900	2/22	29	7.8	5.6	7.7
FOURTH OF JULY	3450	2/28	25	7.6	7.6	-
FRED HURR PASS	8000	2/25	53	17.4	25.0	22.9
FREIGHT CREEK	6000	2/23	29	8.7	15.9	14.1
FRIDAY HILL	4620	2/28	62	22.4	19.0	-
FROHNER MEADOWS	6480	2/24	24	6.6	6.4	7.5
FROHNER MEADOWS PILLOW	6480	2/24	SP	6.3	7.5	8.0
GARVER CREEK	4250	2/25	28	10.3	11.8	11.4
GARVER CREEK PILLOW	4250	2/25	SP	9.4	9.3	10.3
GIBBONS PASS	7100	2/28	66	21.3	26.8	21.2
GOAT MOUNTAIN	7000	2/27	19	5.5	10.3	10.1
GOLD CREEK LAKE	7200	2/22	38	10.9	14.1	14.0
GOLD STONE	8100	2/24	44	12.9	21.0	15.5
GRASSHOPPER	7000	2/22	18	4.2	4.8	5.3
GRAVE CREEK	4300	2/25	49	18.2	16.4	17.5
GRAVE CREEK PILLOW	4300	2/25	SP	16.2	17.7	17.4
GRIFFIN CREEK DIVIDE	5150	3/01	28	8.2	11.9	10.9
GRIZZLY PEAK	8640	2/25	45	14.4	9.9	13.2
GUNSIGHT LAKE	6300	2/23	78	28.8	40.8	38.2
HAND CREEK	5030	2/28	35	9.6	12.9	11.8
HAND CREEK PILLOW	5030	3/01	SP	4.8	13.2	-
HAWKINS LAKE	6450	2/25	76	29.6	31.0	28.6
HAWKINS LAKE PILLOW	6450	2/25	SP	25.0	26.1	27.5
HEART LAKE TRAIL	4800	2/26	43	15.4	20.8	21.1
HEAGEN DAM	6550	3/01	50	13.0	11.6	11.2
HELL ROARING DIVIDE	5770	2/26	69	22.2	26.9	29.6
HERRIG JUNCTION	4850	2/23	69	22.6	25.0	-
HIGHWOOD DIVIDE	5650	2/28	22	7.2	-	9.1
HIGHWOOD STATION	4600	2/28	0	.0	-	4.4
HOLBROOK	4530	2/28	21	6.4	10.3	9.6
HOOD MEADOW	6600	2/28	24	6.1	9.1	9.7
HOODOO BASIN	6000	2/26	111	40.4	49.9	45.4
HOODOO BASIN PILLOW	6000	3/01	SP	36.0	46.1	44.0
HOODOO CREEK	5900	2/26	105	36.6	47.5	42.0
INDEPENDENCE	7850	2/25	39	10.8	15.3	17.1
INTERGAARD	6450	2/25	18	4.8	7.3	7.9
JACK CREEK	7500	2/23	25	5.3	4.2	4.9
JAHNKE LAKE TRAIL	7200	2/24	31	8.4	12.8	9.1
JOHNSON PARK	6450	2/24	17	3.9	6.8	6.8
KEELER CREEK	3300	2/25	30	11.3	14.7	14.6
KINGS HILL	7500	2/25	28	7.7	12.8	12.7
KISHENEHN	3890	2/26	25	6.0	9.6	8.6
KIWANIS CAMP	3720	2/28	0	.0	2.0	1.7
KRAFT CREEK PILLOW	4750	3/01	SP	11.1	15.5	-
LAKE CREEK	6100	2/25	34	8.3	6.9	9.5
LAKEVIEW CANYON	6930	2/25	41	12.8	6.7	10.8
LAKEVIEW RIDGE	7400	2/25	40	12.8	6.9	9.7
LAKEVIEW RIDGE PILLOW	7400	3/01	SP	13.9	7.6	-
LEMHI PASS	7480	2/26	26	5.2	8.8	8.1
LEMHI RIDGE	8100	2/26	31	6.4	10.8	8.9
LEMHI RIDGE PILLOW	8100	2/26	SP	6.2	10.5	9.0
LICK CREEK	6860	2/28	28	6.4	8.8	9.0
LICK CREEK PILLOW	6860	2/28	SP	5.5	7.7	8.6
LITTLE PARK	7400	2/22	47	11.7	15.0	14.6
LOGAN CREEK	4300	2/25	20	4.4	7.0	7.3

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DRAINAGE BASIN and/or SNOW COURSE		THIS YEAR			PAST RECORD	
		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Elevation				Last Year	Average
CAMP MISERY	6400	2/24	106	40.8	44.0	43.9
CAMP SENIA	7890	2/23	20	3.8	2.4	5.1
CARROT BASIN	9000	2/28	96	31.6	32.6	32.7
CARROT BASIN PILLOW	9000	2/28	SP	25.4	24.0	24.2
CARTER CREEK	7400	2/28	17	4.4	-	4.3
CASHE CREEK PILLOW	7800	3/01	SP	7.8	7.3	-
CEDAR GROVE	4100	2/25	28	9.0	12.2	12.0
CHESSMAN RESERVOIR	6200	2/24	18	5.2	3.0	3.5
CHICKEN CREEK	4060	2/23	39	12.0	15.6	-
CLOVER MEADOW	8600	2/25	51	14.4	14.6	14.9
CLOVER MEADOW PILLOW	8600	3/01	SP	10.3	15.1	-
COLE CREEK	7850	2/25	44	13.6	10.8	15.1
COLE CREEK PILLOW	7850	2/25	SP	13.3	9.6	15.0
COLLEY CREEK	6300	2/22	23	3.9	7.9	8.1
COMBINATION	5600	2/23	15	4.2	5.6	5.6
COMBINATION PILLOW	5600	2/23	SP	4.6	5.5	5.8
COOKE STATION	8150	2/24	52	15.4	19.1	18.0
COPPER BOTTOM	5200	2/26	23	7.7	12.7	11.5
COPPER BOTTOM PILLOW	5200	2/24	SP	8.0	13.1	13.0
COPPER CAMP	6950	2/26	62	21.1	32.0	29.8
COPPER CAMP PILLOW	6950	2/26	SP	21.9	35.2	37.2
COPPER CREEK	5700	2/26	33	12.0	16.3	15.1
COPPER LAKE CREEK	6100	2/26	53	16.9	26.3	23.5
COPPER MOUNTAIN	7700	2/24	33	8.2	11.6	9.9
COTTONWOOD CREEK	6400	2/23	20	5.2	7.0	8.0
COYOTE HILL	4200	2/25	26	7.7	11.1	10.0
CREVICE MOUNTAIN	8400	2/25	31	7.6	9.6	9.8
CRYSTAL LAKE	6100	2/22	31	8.2	8.0	12.4
CRYSTAL LAKE PILLOW	6100	3/01	SP	8.3	8.6	-
DAD CREEK LAKE	8400	2/26	39	9.8	14.0	11.6
DAISY PEAK	7600	2/24	29	6.2	11.1	10.0
DALY CREEK	5780	2/23	30	8.5	12.6	10.7
DALY CREEK PILLOW	5780	3/01	SP	8.9	13.4	-
DARKHORSE LAKE	8600	2/25	57	18.8	30.4	25.2
DARKHORSE LAKE PILLOW	8600	3/01	SP	14.8	25.9	-
DAVIS CREEK	5400	2/25	67	22.7	25.5	22.9
DEADMAN CREEK	6450	2/25	27	6.8	8.3	11.0
DEADMAN CREEK PILLOW	6450	2/25	SP	5.8	9.4	9.8
DESERT MOUNTAIN	5600	2/24	32	12.6	14.9	14.5
DEVILS SLIDE	8100	2/28	50	16.0	17.4	20.0
DISCOVERY BASIN	7050	2/24	26	6.8	10.4	9.9
DIVIDE	7900	2/27	44	11.3	9.8	9.8
DIVIDE PILLOW	7900	2/27	SP	9.9	10.3	10.1
DIX HILL	6400	2/27	28	7.8	12.2	9.9
EAST FORK R.S.	5400	2/28	19	4.6	8.2	6.8
EL DORADO MINE	7800	2/22	50	15.0	18.8	18.9
ELK HORN SPRINGS	7800	2/25	28	6.6	9.4	8.5
ELK PEAK	8000	2/22	37	10.3	13.2	14.9
EMERY CREEK	4350	2/24	40	13.9	16.3	14.9
EMERY CREEK PILLOW	4350	2/24	SP	13.9	15.7	-
FATTY CREEK	5500	2/23	53	19.4	22.7	20.7
FISH CREEK	8000	2/25	31	8.8	10.8	8.8
FISHER CREEK	9100	2/24	74	26.5	37.4	34.7
FISHER CREEK PILLOW	9100	2/24	SP	24.8	33.1	32.8
FIVE-HULL	5700	2/26	4	3.6	7.5	6.7

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SNOW March 1, 1983		THIS YEAR			PAST RECORD	
DRAINAGE BASIN and/or SNOW COURSE		Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Elevation				Last Year	Average
LONE MOUNTAIN	8880	2/28	61	18.6	23.6	20.5
LOST HORSE	5940	2/25	68	24.0	40.0	30.2
LOST SOUL	4800	2/25	41	14.5	16.9	15.6
LOWER TWIN	7900	2/22	58	18.5	23.0	18.7
LOWER TWIN PILLOW	7900	3/01	SP	18.3	17.6	-
LUBRECHT FLUME	4800	3/02	12	4.4	8.0	6.5
LUBRECHT FLUME PILLOW	4800	3/01	SP	4.9	8.8	6.4
LUBRECHT FOREST # 3	5450	3/02	18	4.8	8.4	7.0
LUBRECHT FOREST # 4	4650	3/02	6	2.0	5.0	3.5
LUBRECHT FOREST # 6	4040	3/02	6	2.3	6.2	4.0
LUBRECHT HYDROPLOT	4200	3/02	13	4.6	8.4	5.7
MADISON PLATEAU	7750	2/24	63	21.9	22.5	17.8
MADISON PLATEAU PILLOW	7750	2/24	SP	19.9	22.7	18.7
MANY GLACIER	4960	2/26	49	16.5	20.6	-
MANY GLACIER PILLOW	4960	3/01	SP	14.7	16.6	-
MARIAS PASS	5250	2/28	38	14.1	20.0	16.3
MAYNARD CREEK	6210	2/24	35	10.3	10.3	12.6
MAYNARD CREEK PILLOW	6210	2/24	SP	7.8	8.2	10.0
MIDDLE MILL CREEK	7850	2/28	53	15.4	15.4	14.7
MILL CREEK	7500	2/22	34	7.2	12.0	12.0
MINERAL CREEK	4000	2/26	46	15.4	18.4	17.2
MONUMENT PEAK	8800	2/25	58	19.0	24.0	24.3
MONUMENT PEAK PILLOW	8800	3/01	SP	13.6	19.0	-
MOULTON RESERVOIR	6850	2/24	26	4.6	7.7	-
MOUNT LOCKHART	6400	2/28	45	14.6	24.4	20.6
MOUNT LOCKHART PILLOW	6400	2/28	SP	12.9	22.6	18.2
MUDD LAKE	7650	2/25	54	17.2	24.2	18.7
MULE CREEK	8300	2/25	40	10.7	16.5	-
MULE CREEK PILLOW	8350	3/01	SP	9.8	14.3	-
NEVADA CREEK	6480	2/26	34	9.5	13.8	-
NEVADA CREEK PILLOW	6480	3/01	SP	9.1	12.8	-
NEW WORLD	6700	2/23	37	9.8	11.2	13.2
NEWTON MOUNTAIN	5600	2/28	94	34.5	31.6	-
NEZ PERCE CAMP	5650	2/24	38	11.4	18.2	13.8
NEZ PERCE CAMP PILLOW	5650	2/24	SP	10.6	18.0	-
NEZ PERCE CREEK	6500	2/24	20	5.0	6.3	7.0
NEZ PERCE PASS	6570	2/24	38	11.7	19.5	15.7
NOISY BASIN	6040	2/24	102	37.5	40.0	39.6
NOISY BASIN PILLOW	6040	3/01	SP	34.6	35.3	34.4
NORTH FK. ELK CREEK	6250	3/02	30	8.8	12.8	11.7
NORTH FK. ELK CREEK PILLOW	6250	3/02	SP	8.5	13.9	11.9
NORTH FORK JOCKO	6330	2/27	98	34.6	42.2	41.1
NORTH MEADOW	7500	2/22	28	7.8	6.2	7.7
NORTHEAST ENTRANCE	7400	3/03	25	6.4	8.3	9.1
NORTHEAST ENTRANCE PILLOW	7400	3/01	SP	7.7	8.1	8.7
NOTCH	8500	2/27	55	16.2	12.4	13.3
OPHIR PARK	7150	2/27	44	14.4	17.2	17.9
PETERSON MEADOWS	7200	2/24	25	6.5	8.8	9.1
PETERSON MEADOWS PILLOW	7200	2/24	SP	6.6	8.8	9.1
PICKFOOT CREEK	6650	2/23	31	9.3	9.7	-
PICKFOOT CREEK PILLOW	6650	3/01	SP	7.9	9.0	-
PIPESTONE PASS	7200	2/24	15	3.5	4.0	4.5
PLACER BASIN PILLOW	8830	3/01	SP	10.2	12.8	-
POORMAN CREEK	5100	2/25	68	29.4	36.0	30.4
POORMAN CREEK PILLOW	5100	2/25	SP	24.2	32.9	29.8

SNOW SURVEY DATA

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SNOW March 1, 1983

DRAINAGE BASIN and/or SNOW COURSE		Date of Survey	THIS YEAR		PAST RECORD	
			Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Elevation				Last Year	Average
PORCUPINE	6500	2/24	20	5.0	6.0	6.7
PORCUPINE PILLOW	6500	2/24	SP	5.5	5.7	-
POTOMAGETON PARK	7150	3/01	50	13.4	12.3	13.4
RED MOUNTAIN	6000	3/01	54	16.8	18.2	17.5
RED TOP	5260	2/28	77	27.0	26.4	-
ROCK CREEK	5600	2/22	25	6.8	6.6	8.5
ROCK CREEK MEADOWS	8160	2/23	56	15.1	20.4	19.4
ROCKER PEAK	8000	2/24	31	8.8	13.9	13.7
ROCKER PEAK PILLOW	8000	2/24	SP	9.6	14.4	13.0
ROCKY BOY	4700	2/28	7	1.4	3.4	4.5
ROCKY BOY PILLOW	4700	2/28	SP	3.6	4.7	4.4
SACAJAWEA	6550	2/24	41	11.8	11.5	13.3
SADDLE MOUNTAIN	7940	2/28	67	21.6	28.5	22.9
SADDLE MOUNTAIN PILLOW	7940	2/28	SP	21.3	29.4	23.9
SENTINEL CREEK	8300	3/01	EST	21.2	20.0	21.3
SHOWER FALLS	8100	2/28	52	16.4	19.1	21.4
SHOWER FALLS PILLOW	8100	3/01	SP	16.4	18.6	21.0
SILVER RUN	6630	2/25	16	4.6	1.2	4.5
SILVER RUN PILLOW	6630	2/25	SP	3.7	2.7	-
SKALKAHO SUMMIT	7260	2/23	61	19.0	28.4	23.9
SKALKAHO SUMMIT PILLOW	7260	3/01	SP	17.9	28.2	-
SKYLARK TRAIL PILLOW	6200	3/01	SP	23.1	35.1	-
SLAG-A-MELT LAKE	8750	2/25	66	23.2	29.7	24.2
SLIDE ROCK MOUNTAIN	7100	2/23	37	10.4	15.6	15.2
SMUGGLER MINE	6960	2/28	40	10.2	9.7	8.9
SOUTH FORK SHIELDS	8100	2/24	53	17.4	20.6	21.3
SOUTH FORK SHIELDS PILLOW	8100	2/24	SP	11.7	14.0	-
SPOTTED BEAR MOUNTAIN	7000	2/23	36	11.4	15.8	14.6
SPUR PARK	8100	2/25	41	12.4	20.3	19.2
SPUR PARK PILLOW	8100	2/25	SP	13.7	20.1	20.0
STAHL PEAK	6050	2/25	95	34.0	34.3	36.8
STAHL PEAK PILLOW	6050	2/25	SP	30.0	31.0	29.8
STEMPLE PASS	6600	2/25	27	7.0	9.9	9.6
STORM LAKE	7780	2/24	38	11.2	10.3	11.6
STRYKER BASIN	6180	2/23	81	28.4	29.9	-
STUART MILL	6500	2/25	17	4.6	6.2	6.4
STUART MOUNTAIN	7400	2/27	78	27.8	30.0	29.3
SUCKER CREEK	3960	2/28	0	.0	.8	0.7
TAYLOR ROAD	4080	2/28	0	.0	3.0	3.3
TEN MILE LOWER	6600	2/23	22	6.4	5.8	6.8
TEN MILE MIDDLE	6800	2/23	31	7.8	9.6	10.3
TEN MILE UPPER	8000	2/23	33	8.8	11.3	12.8
TEPEE CREEK	8000	2/25	50	12.8	13.9	14.0
TEPEE CREEK PILLOW	8000	2/25	SP	12.0	11.3	11.1
TIMBERLINE CREEK	8850	2/23	44	12.2	8.8	13.0
TRAIL CREEK	7090	2/26	25	4.3	8.5	7.3
TRINKUS LAKE	6100	2/23	87	31.9	41.6	40.2
TRUMAN CREEK	4060	2/25	8	2.8	4.4	-
TV MOUNTAIN	6800	2/27	48	15.8	17.1	17.2

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DRAINAGE BASIN and/or SNOW COURSE		Date of Survey	THIS YEAR		PAST RECORD	
			Snow Depth (Inches)	Water Content (Inches)	Water Content (Inches)	
NAME	Elevation				Last Year	Average
TWELVEMILE CREEK	5600	2/25	49	16.8	27.1	21.1
TWELVEMILE CREEK PILLOW	5600	3/01	SP	12.9	22.5	17.7
TWENTY-ONE MILE	7150	2/25	47	13.6	13.6	16.6
TWIN CREEKS	3580	2/23	28	9.8	14.0	12.0
TWIN LAKES	6510	2/25	82	29.6	46.6	38.2
TWIN LAKES PILLOW	6510	2/25	SP	29.7	45.3	38.2
UPPER HOLLAND LAKE	6200	2/26	69	23.6	33.9	33.7
WALDRON	5600	2/28	20	6.2	11.2	10.1
WALDRON PILLOW	5600	3/01	SP	7.1	11.7	10.1
WARM SPRINGS	7800	2/25	43	12.8	20.4	-
WARM SPRINGS PILLOW	7800	2/25	SP	14.4	20.9	-
WEASEL DIVIDE	5450	2/25	86	31.6	30.9	32.4
WEST ROSEBUD	7500	2/23	20	5.2	7.3	9.8
WEST YELLOWSTONE	6700	2/25	38	10.4	9.5	11.1
WEST YELLOWSTONE PILLOW	6700	2/25	SP	8.4	8.3	8.0
WHISKEY CREEK	6800	2/24	59	18.4	21.4	17.9
WHISKEY CREEK PILLOW	6800	2/24	SP	14.6	15.7	14.9
WHITE MILL	8700	2/24	68	21.4	27.2	25.0
WHITE MILL PILLOW	8700	2/24	SP	19.0	23.7	20.8
WHITE PINE RIDGE	8850	2/26	24	4.2	4.2	4.6
WILLOW CREEK	6500	2/25	27	5.8	5.6	8.7
WOOD CREEK	5960	2/26	23	8.0	12.6	-
WOOD CREEK PILLOW	5960	3/01	SP	8.1	10.4	-
WRONG CREEK	5700	2/24	28	7.7	13.5	13.4
WRONG RIDGE	6800	2/25	37	11.9	19.2	18.3

ALBERTA

AKAMINA (AL)	5810	3/03	56	17.9	18.6	-
ALLISON PASS (AL)	6490	3/01	48	13.8	-	-
30W RIVER (AL)	5080	3/01	29	7.2	8.7	8.2
30W RIVER SUMMIT (AL)	6660	3/01	45	11.6	10.8	13.3
CHATEAU LAWN (AL)	5710	3/01	39	9.5	8.7	10.3
CUTHEAD LAKE (AL)	7250	3/02	40	9.8	11.0	-
HIGHWOOD SUMMIT BUSH (AL)	7250	3/03	78	11.7	9.5	13.6
LEE CREEK Q (AL)	4890	2/28	14	4.2	4.5	6.8
LITTLE ELBOW SUMMIT (AL)	7090	3/03	46	10.3	8.7	9.4
MIRROR LAKE (AL)	6590	3/01	35	9.0	8.4	10.3
MOUNT SKOKI (AL)	6740	3/02	41	11.0	11.3	-
MUD LAKE (AL)	6200	3/03	39	10.1	11.6	-
NIGEL CREEK (AL)	6400	3/02	44	11.0	14.0	14.7
PIPESTONE UPPER (AL)	5300	2/28	29	7.2	9.2	8.6
PTARMIGAN HUT (AL)	7150	3/02	43	11.5	12.8	13.7
SUNSHINE VILLAGE PILLOW (AL)	7300	3/01	SP	15.3	20.3	19.8
SUNWAPTA FALLS (AL)	4590	3/01	21	4.0	6.9	6.9
THREE ISLE LAKE (AL)	7090	3/03	57	17.5	-	-

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NAME	Elevation				Last Year	Average
FERNIE (BC)	3510	2/25	21	7.7	8.9	7.9
FERNIE EAST (BC)	4100	2/25	43	14.3	15.1	14.0
FERNIE NE (BC)	3510	2/25	28	9.6A	10.2	9.0
FIDELITY MOUNTAIN (BC)	6130	2/28	99	31.6	44.5	43.1
FIELD (BC)	4200	2/23	22	5.7A	8.3	5.9
GLACIER (BC)	4100	2/28	58	20.7	28.3	23.8
GRAY CREEK LOWER (BC)	5080	2/28	41	14.8	15.4	16.0
GRAY CREEK UPPER (BC)	6260	2/28	70	22.8	30.8	26.9
KICKING HORSE (BC)	5410	2/23	35	10.7	12.8	13.1
KIMBERLEY (BC)	3800	2/27	19	4.8A	-	7.5
KIMBERLEY LOWER VOR (BC)	4490	2/24	25	6.8	8.6	8.0
KIMBERLEY MIDDLE VOR (BC)	5510	2/24	34	9.4	11.0	10.9
KIMBERLEY UPPER VOR (BC)	7020	2/24	46	13.7	16.0	17.4
MARBLE CANYON (BC)	4990	3/02	EST	11.8	14.4	13.3
MORRISSEY RIDGE (BC)	6100	2/24	72	25.7	26.5	25.4
MOUNT ABBOT (BC)	6490	2/28	107	34.3	45.5	40.8
MOYIE MOUNTAIN (BC)	6360	2/28	47	15.2	15.1	16.2
SINCLAIR PASS (BC)	4490	2/28	16	3.5	11.6	5.6
SULLIVAN MINE (BC)	5080	2/25	33	9.3	12.0	12.6
UPPER ELK RIVER (BC)	4400	2/27	7	2.8	6.1	6.9

IDAHO

ABOVE BURKE (ID)	4100	2/28	40	15.4	18.1	22.9
BEAR MOUNTAIN (ID)	5400	2/25	140	59.7	61.8	53.7
BEAR MOUNTAIN PILLOW (ID)	5400	2/25	SP	57.9	68.1	-
BIG SPRINGS (ID)	6500	2/25	60	19.4	20.2	18.7
BLACK CANYON (ID)	7960	2/24	91	31.8	36.6	29.9
BLACK MOOSE (ID)	8160	2/24	106	40.4	40.2	36.1
CAMP CREEK (ID)	6580	3/01	52	14.0	8.1	9.8
CRAB CREEK PILLOW (ID)	6860	3/01	SP	22.1	11.8	-
HUMBOLDT GULCH (ID)	4250	2/28	34	12.8	13.6	-
HUMBOLDT GULCH PILLOW (ID)	4250	3/01	SP	11.5	14.1	-
ISLAND PARK (ID)	6290	2/25	57	18.3	16.7	15.1
ISLAND PARK PILLOW (ID)	6290	3/01	SP	17.9	15.3	-
KILGORE (ID)	6320	2/28	52	14.6	10.4	10.6
KIT CARSON (ID)	4950	2/24	22	5.2	11.7	-
LATHAM SPRINGS (ID)	7630	2/24	87	31.2	34.0	28.6
LOLO PASS (ID)	5230	3/01	59	19.1	31.8	27.5
LOOKOUT (ID)	5250	2/28	80	29.0	30.6	31.0
LOOKOUT PILLOW (ID)	5250	3/01	SP	28.9	30.5	-
LUCKY DOG (ID)	6860	2/24	76	24.4	27.8	22.1
MOOSE CREEK (ID)	6200	2/25	54	16.8	21.5	15.6
MOOSE CREEK PILLOW (ID)	6200	3/01	SP	17.1	21.5	-
MOSQUITO RIDGE (ID)	5200	2/27	115	40.4A	38.3	34.6
MOSQUITO RIDGE PILLOW (ID)	5200	3/01	SP	37.7	33.7	-
SAVAGE PASS (ID)	6170	3/01	60	19.6	29.0	24.1
SAWTELL MOUNTAIN (ID)	8720	2/25	97	36.6	33.6	28.4
SUNSET (ID)	5540	2/27	101	35.5A	39.1	32.6
SUNSET PILLOW (ID)	5540	3/01	SP	30.8	35.8	-
TARGHEE PASS (ID)	6980	2/25	47	14.4	14.1	13.6
VALLEY VIEW (ID)	6680	2/25	48	16.0	14.6	15.6
WHITE ELEPHANT (ID)	7710	2/25	69	23.6	25.3	18.4

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NAME	Elevation				Last Year	Average
BALD MOUNTAIN (WY)	9380	2/28	59	17.9	12.2	19.3
BALD MOUNTAIN PILLOW (WY)	9380	2/28	SP	15.5	15.2	-
BURGESS R.S. (WY)	7880	2/28	23	5.8	5.1	7.1
BURGESS R.S. PILLOW (WY)	7880	2/28	SP	8.7	5.5	-
CANYON PILLOW (WY)	7940	3/02	SP	12.1	15.2	14.3
EAST ENTRANCE (WY)	6960	2/27	35	9.0	12.1	9.7
EVENING STAR PILLOW (WY)	9200	3/01	SP	13.4	-	-
FIVE SPRINGS FALLS (WY)	7620	2/28	17	3.5	4.0	7.3
LAKE CAMP (WY)	7780	2/27	35	7.6	9.6	8.3
LUPINE CREEK (WY)	7380	3/01	31	8.0	7.7	9.9
NORRIS BASIN (WY)	7500	3/01	35	7.7	10.5	10.1
OLD FAITHFUL (WY)	7400	3/01	51	13.1	13.7	-
PARKERS PEAK PILLOW (WY)	9400	3/01	SP	17.8	23.2	29.7
SYLVAN LAKE PILLOW (WY)	8420	2/27	SP	17.3	21.8	-
SYLVAN PASS (WY)	7100	2/27	39	10.2	16.4	12.2
THUMB DIVIDE (WY)	7980	2/28	59	15.4	20.7	18.2
TOGWOTEE PASS (WY)	9580	3/01	74	22.5	31.4	25.2
TROUT CREEK PILLOW (WY)	8400	3/01	SP	4.7	-	-
WOLVERINE (WY)	7650	2/28	38	10.6	13.6	10.7
WOLVERINE PILLOW (WY)	7650	2/28	SP	9.5	11.5	-
YOUNTS PEAK PILLOW (WY)	8350	3/01	SP	11.8	20.8	19.5

Average based on 1963-77 period. A = Aerial observation; water content estimated.
SP = Snow Pillow observations; water content only.



Light snowpacks in some areas and mild temperatures have been favorable for wintering wildlife.

Columbia River Drainage

STREAMFLOW FORECASTS

BASIN, STREAM and/or FORECAST POINT	THIS YEAR		PAST RECORD		THIS YEAR		PAST RECORD		THIS YEAR		PAST RECORD	
	FORECAST		THOUSAND ACRE FEET		FORECAST		THOUSAND ACRE FEET		FORECAST		THOUSAND ACRE FEET	
	Thousand Acre Feet	Percent of Average	Last Year	Average	Thousand Acre Feet	Percent of Average	Last Year	Average	Thousand Acre Feet	Percent of Average	Last Year	Average
PERIOD	April - September				April - July				April - June			
KOOTENAI RIVER below Libby Dam (1)	6,650	92	7,017	7,246	5,670	92	5,878	6,178				
FISHER RIVER near Libby	220	81		270	205	81		253				
YAAK RIVER near Troy	490	91		537	465	90		514				
KOOTENAI RIVER at Leona (1)	8,350	94	8,643	8,883	7,260	94	7,413	7,727	5780	94	5,921	6,150
INFLOW MOULTON RESERVOIR nr BUTTE (Million Gallons)					210	73	360	286	190	73	328	260
WARM SPRINGS CREEK AT MEYERS DAM near Anaconda (2)	40.7	80		50.7	33.0	80		41.2				
FLINT CREEK near Southern Cross (3)	13.9	75	24.6	18.5	11.5	75	20.0	15.4				
FLINT CREEK below Boulder Creek (4)	58.8	76		77.6	46.0	75		61.3				
INFLOW LOWER WILLOW CREEK RESERVOIR near Hall (5)	11.8	70	15.9	16.9	11.1	69	15.1	16.0				
MIDDLE FORK ROCK CREEK near Philipsburg	67.0	85		78.8	60.5	85		71.1				
NEVADA CREEK near Finn	16.5	70		23.6	15.1	69		21.8				
BLACKFOOT RIVER near Bonner	790	78		1,017	710	77		920	610	77		794
CLARK FORK RIVER above Milltown (6)	715	85		843	620	85		730	530	86		613
CLARK FORK RIVER above Missoula	1,505	81	2,260	1,859	1,330	81	2,038	1,651	1,140	81	1,645	1,408
WEST FORK BITTERROOT RIVER near Conner (7)	153	82		187	140	81		172				
BITTERROOT RIVER near Darby	455	76		602	420	76		552	370	77		480
SKALKAHO CREEK near Hamilton	47.5	83		57.4	41.5	83		49.8				
BURNT FORK CREEK near Stevensville (8)	32.6	84		38.8	28.5	85		33.6				
BITTERROOT RIVER at Missoula (9)	1,165	76		1,543	1,070	76		1,416	930	77		1,211
CLARK FORK RIVER below Missoula	2,670	78		3,405	2,400	78		3,069	2,070	79		2,618
CLARK FORK RIVER at St. Regis	3,510	78	5,715	4,521	3,150	77	5,292	4,078	2,690	77	4,309	3,492
NORTH FORK FLATHEAD RIVER near Columbia Falls	1,750	89		1,969	1,590	89		1,782	1,350	90		1,498
MIDDLE FORK FLATHEAD RIVER near West Glacier	1,560	82	2,083	1,911	1,430	82	1,925	1,750	1,220	83	1,544	1,470
SOUTH FORK FLATHEAD RIVER near Columbia Falls (10)	1,850	80	2,559	2,302	1,720	80	2,428	2,159	1,510	80	2,034	1,884
FLATHEAD RIVER at Columbia Falls (10)	5,280	83	6,549	6,330	4,900	84	6,080	5,827	4,200	85	4,990	4,964
SWAN RIVER near Big Fork	575	84		681	505	85		596				
FLATHEAD RIVER near Polson (11)	6,180	84	8,005	7,394	5,720	84	7,323	6,806	4,900	85	5,910	5,779
CLARK FORK RIVER near Plains (11)	9,850	80	14,103	12,340	8,960	80	12,939	11,222	7,600	80	10,447	9,507
THOMPSON RIVER near Thompson Falls	236	90		263	211	90		234				
PROSPECT CREEK at Thompson Falls	124	87		143	115	86		133				
CLARK FORK RIVER at Whitehorse Rapids (12)	11,100	81		13,781	10,100	81		12,519	8,610	81		10,633

- (1) Adjusted for storage in Lake Kootenai.
(2) Adjusted for storage in Silver Lake, diversions to and pumping from Georgetown Lake.
(3) Adjusted for storage in Georgetown Lake, diversions from and pumping to Silver Lake.
(4) Sum Flint Creek at Maxville and Boulder Creek at Maxville.
(5) Sum of North Fork Lower Willow Creek near Hall and South Fork Lower Willow Creek near Hall.
(6) Difference in observed flow Clark Fork above Missoula and Blackfoot near Bonner.

- (7) Adjusted for storage in Painted Rocks Reservoir.
(8) Adjusted for diversion into Sunset Highline Canal.
(9) Difference in observed flow Clark Fork above and below Missoula.
(10) Adjusted for storage in Hungry Horse Reservoir.
(11) Adjusted for storage in Hungry Horse Reservoir and Flathead Lake.
(12) Adjusted for storage in Hungry Horse Reservoir, Flathead Lake and Noxon Rapids Reservoir.

ALL FORECASTS PREPARED IN COOPERATION WITH THE NATIONAL WEATHER SERVICE

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	Average
East Kootenay/8C.	19	79	85
Kootenai/Montana	26	87	91
Kootenai above Bonners Ferry...	45	84	89
Little Bitterroot	5	74	75
N. Fk. Flathead..	10	94	92
M. Fk. Flathead..	9	75	77
S. Fk. Flathead..	12	81	84
Swan	9	86	88
Flathead	45	84	85
Stillwater & Whitefish.....	5	75	75
Clark Fork above Blackfoot	35	74	77
Blackfoot	21	70	75
Upper Clark Fork above Missoula ..	56	72	76
Bitterroot	17	66	81
Lower Clark Fork below Missoula ..	19	82	86
Clark Fork (Total w/o Flathead)...	92	74	81
Pend O'Reille (Clark Fork & Flathead)	137	78	83
Columbia (Pend O'Reille & Kootenai)	182	80	85

WATER SUPPLY OUTLOOK

Expressed as "Poor, Fair, Average, Excellent" With Respect to Usual Supply

STREAM or AREA	Flow Period	
	Spring Season	Late Season
Tobacco	Avg	Avg
Little Bitterroot....	Avg	Fair
Mission Valley	Avg	Avg
Flint Creek	Fair	Fair
Upper Clark Fork	Fair	Fair
Nevada Creek	Fair	Fair
Blackfoot	Fair	Poor
West-side Bitterroot	Fair	Fair
East-side Bitterroot	Fair	Fair
Bitterroot River	Fair	Fair
Lower Clark Fork	Fair	Fair

Irrigation shortages expected

Most drainages are forecast to produce below average spring and summer runoff. Only in the north-west are streamflows expected to be near average. Most streams should produce 15 to 25 percent less runoff than normal.

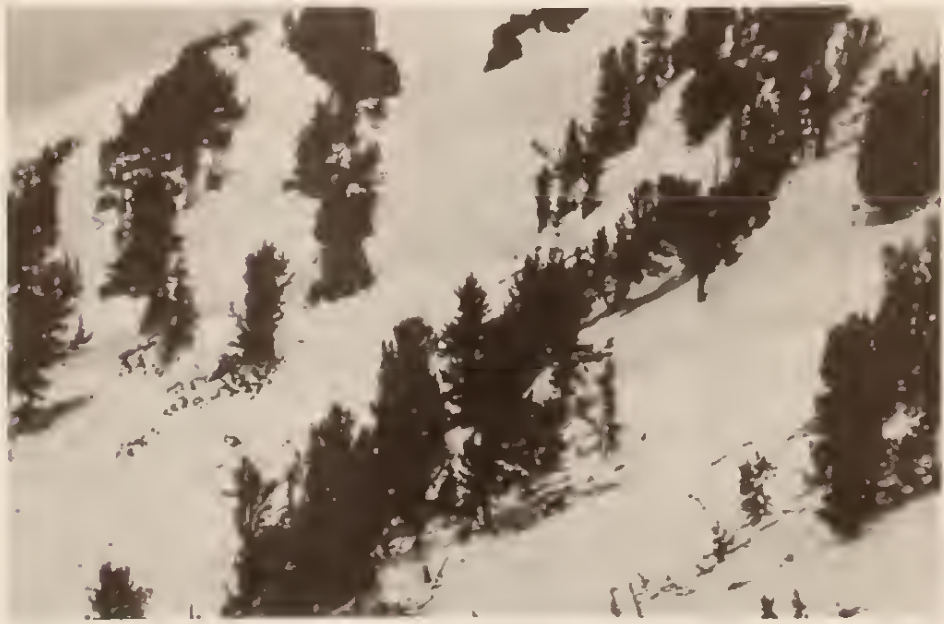
Irrigation water supply shortages are expected to develop in late June to early July due to lack of good high elevation snowpack. The extent of these shortages will be somewhat dependent on mountain snowfall during the next 2 months.

Irrigators not having stored water or good water rights, may want to consider alternatives to minimize the impact of pending short water supplies.

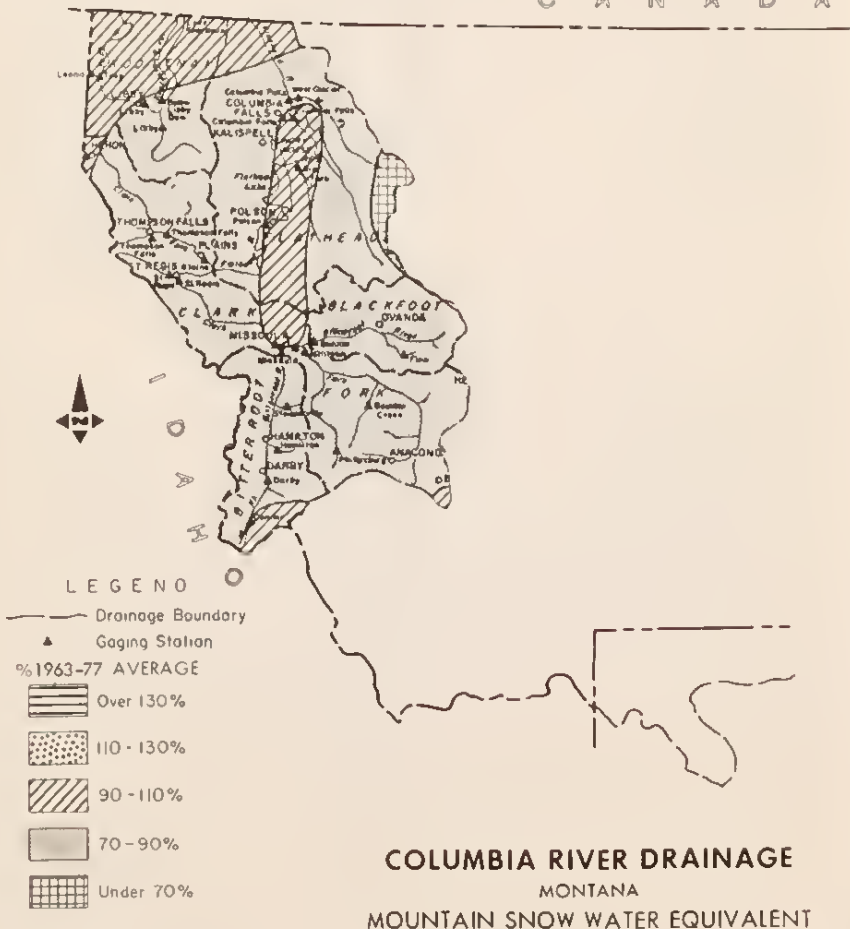
Headwaters below average

Snowpack percentages deteriorated this past month in the northern part of the drainage while southern areas remained about the same. All headwater areas have less than average amounts of water stored in the mountain snowpack. Northern drainages continue to show better snow conditions than do the southern watersheds.

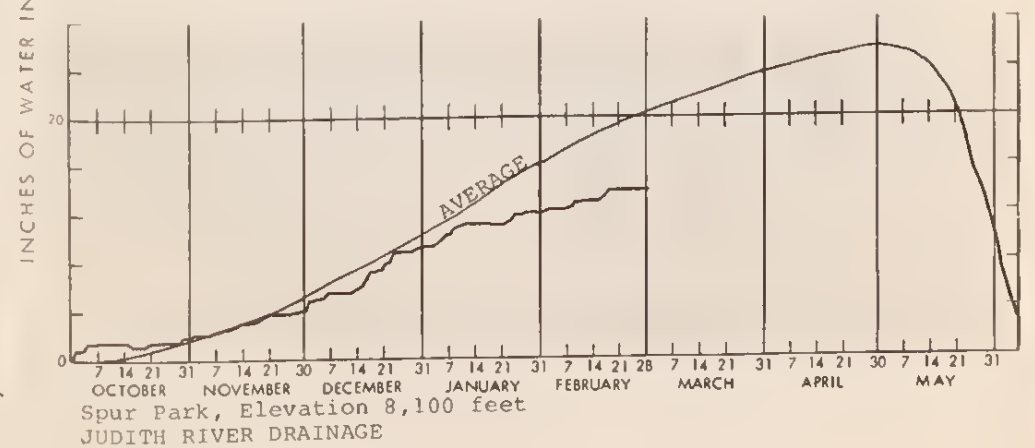
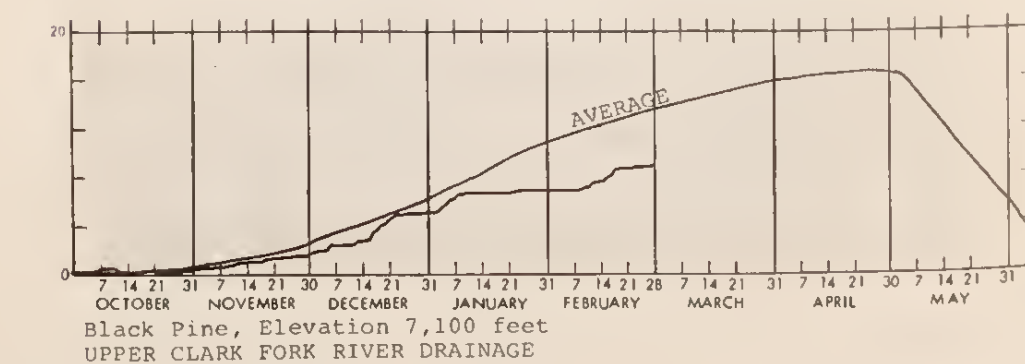
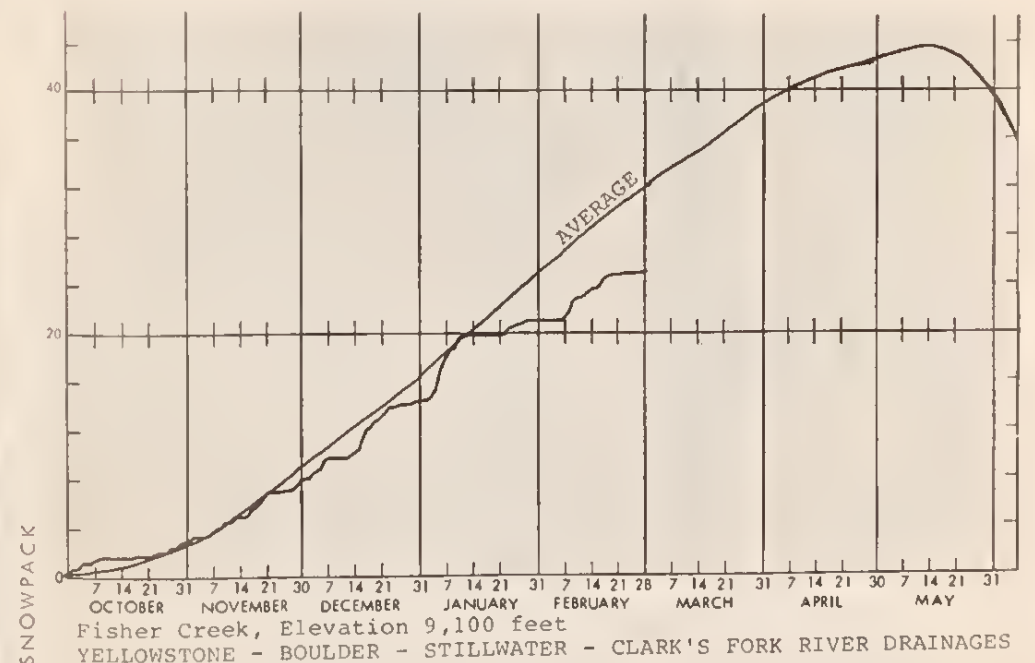
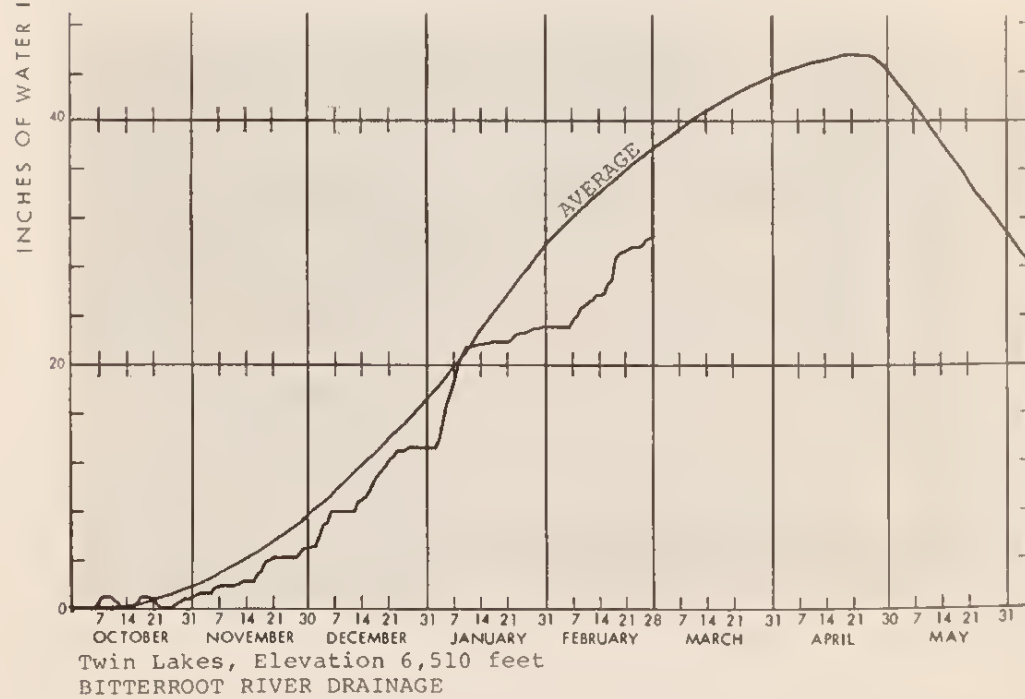
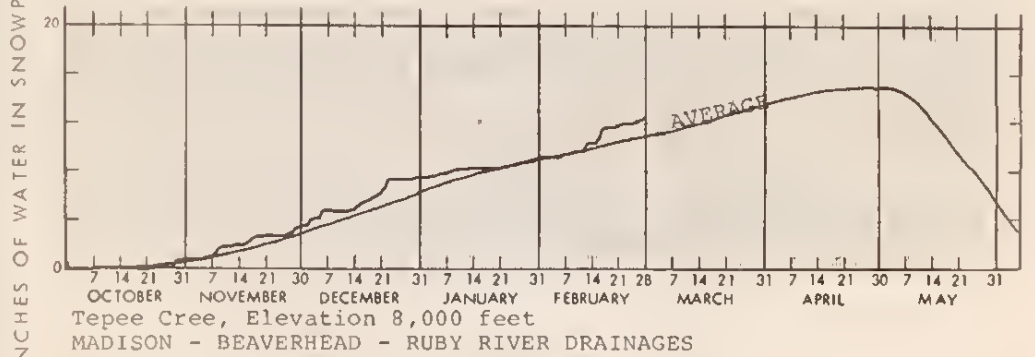
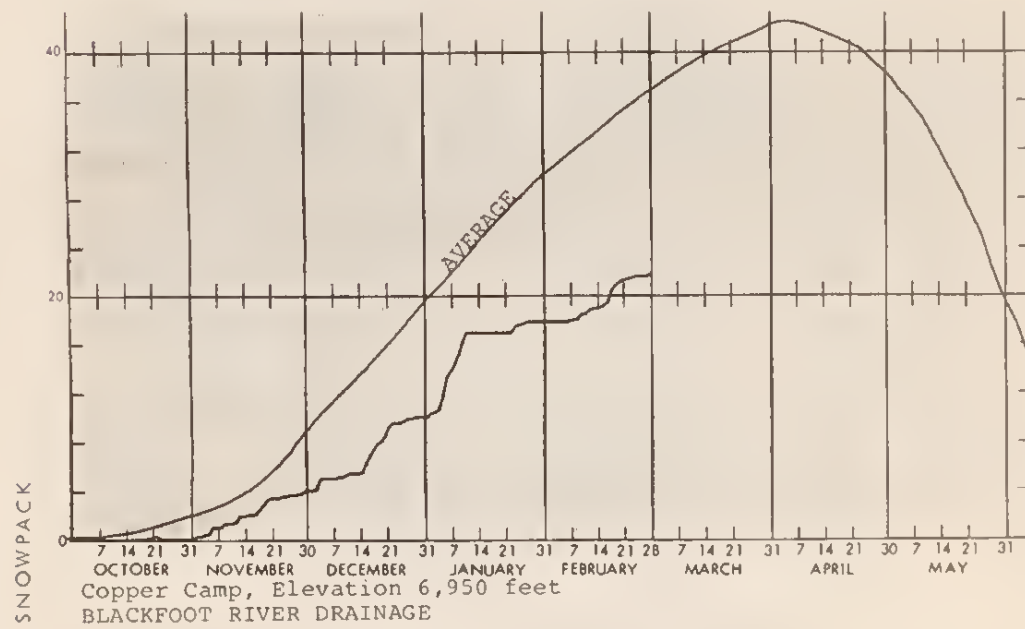
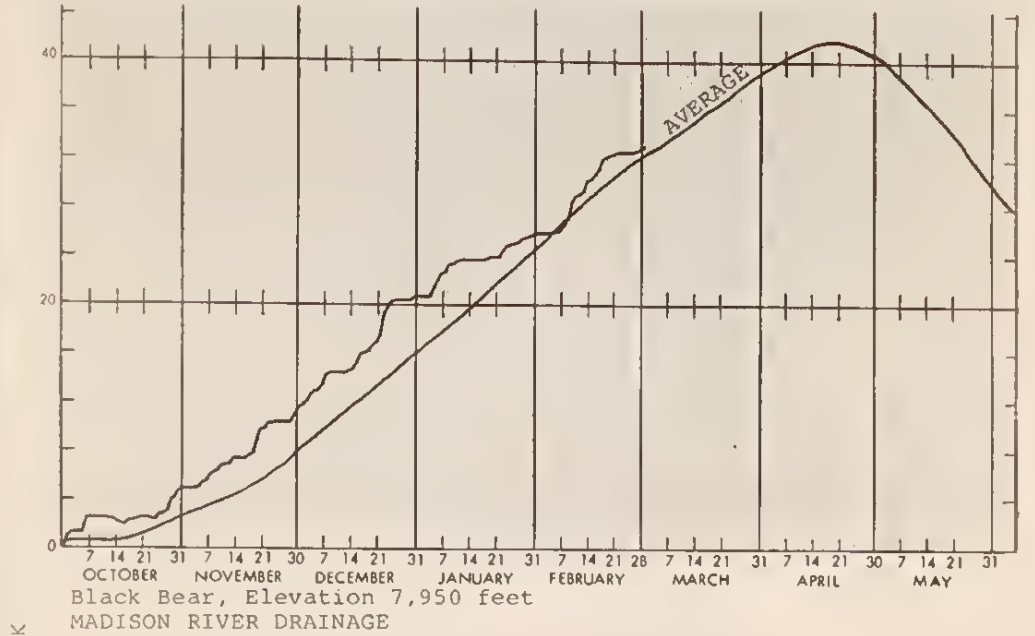
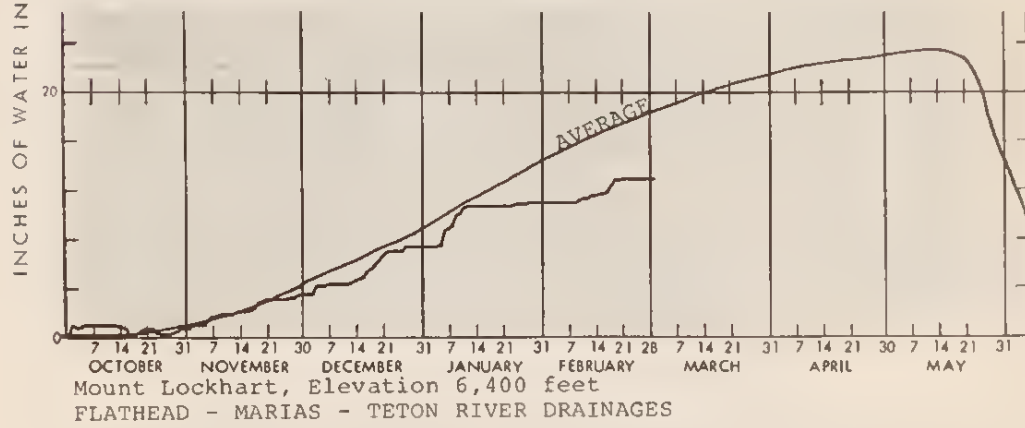
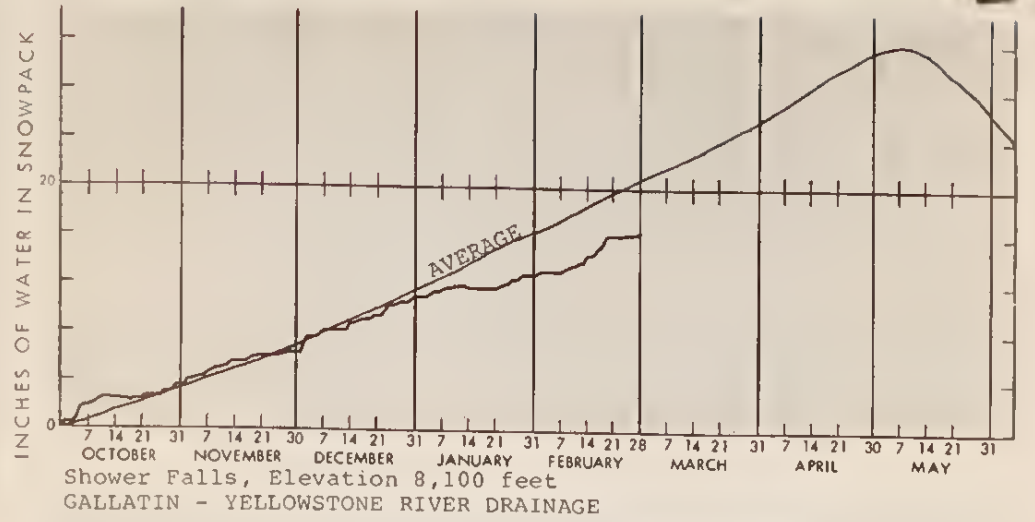
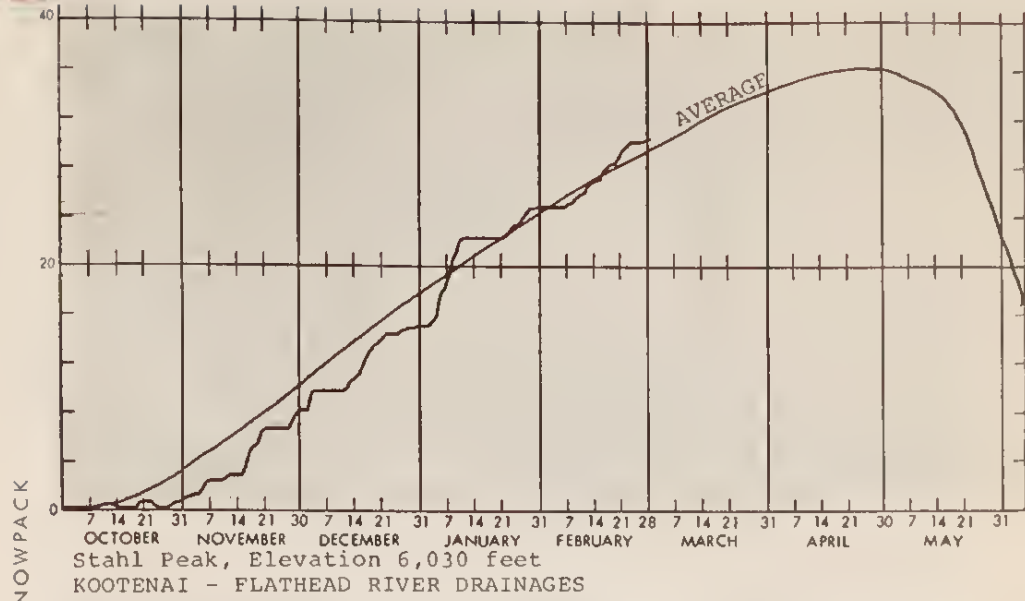
The weather pattern over the last 2 months has not been favorable for good mountain snowfall. If the next 2 months continue to have the same weather trends, shortages of water supplies can be expected in most drainages by mid-season.



Good early season snowfall followed by colder temperatures created a depth hoar layer in the bottom of the snowpack in some areas. This loosely bonded layer, sometimes referred to as "sugar snow," and lack of bonding within the remainder of the snowpack has helped produce numerous avalanches this season.



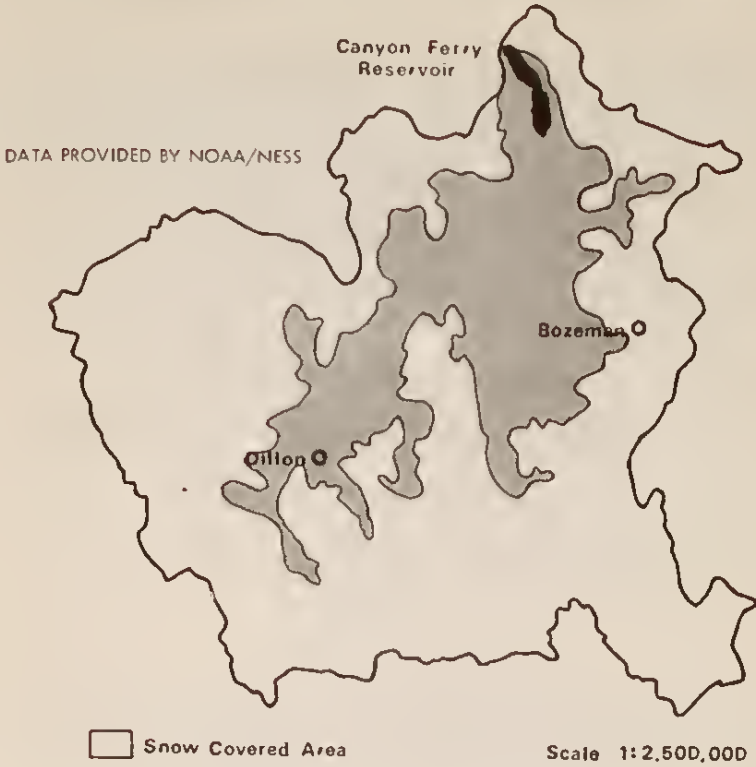
SNOW PILLOW DATA



RESERVOIR STORAGE (Thousand Acre Feet) END OF MONTH February 28, 1983

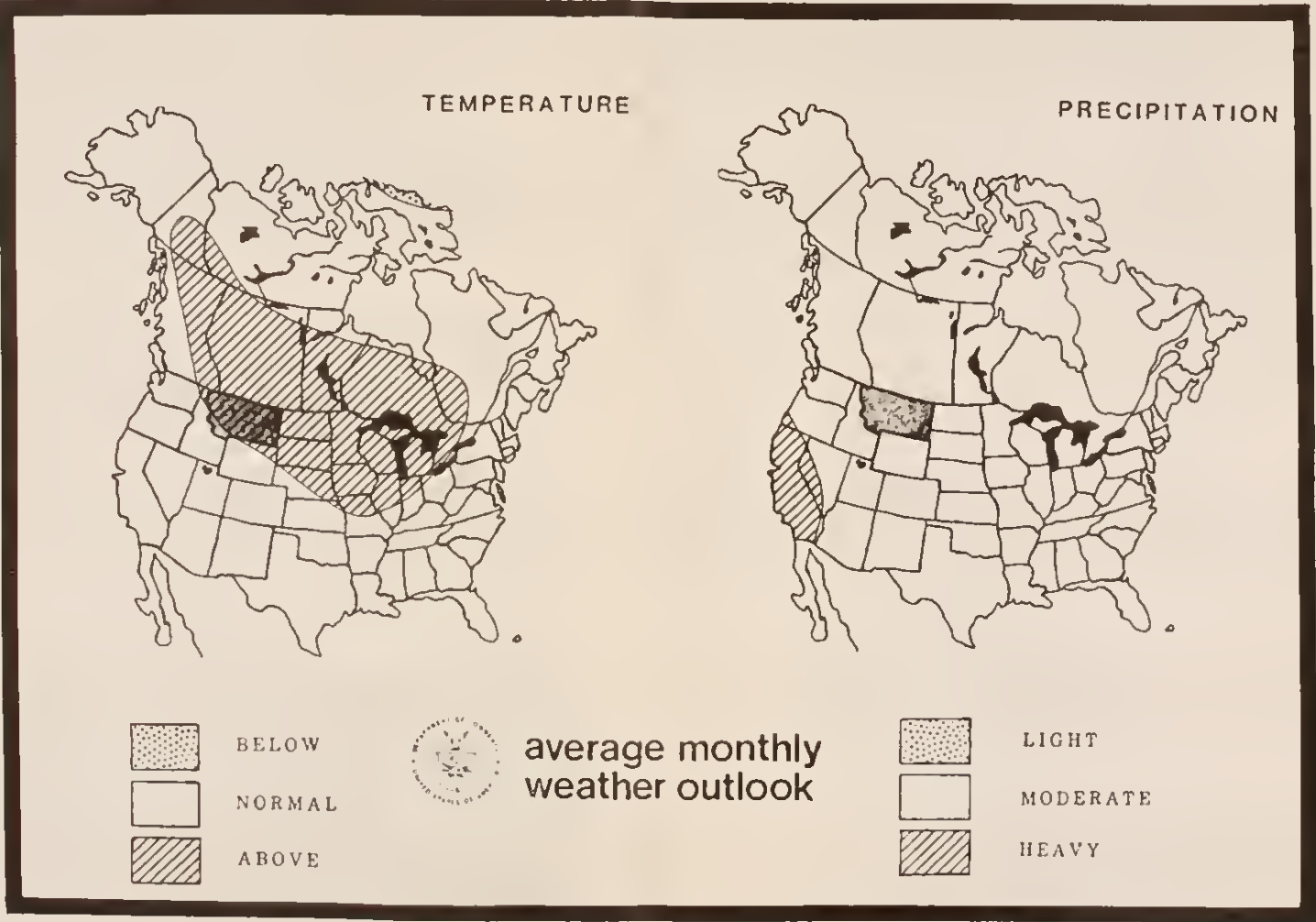
Basin or Stream	RESERVOIR	Usable Capacity	Usable Storage		
			This Year	Last Year	Average
COLUMBIA					
Kootenai	Koocanusa	5,748.2	2,189.8	2,203.0	---
Flathead	Hungry Horse	3,451.0	2,831.0	2,327.0	2,200.0
	Flathead Lake	1,791.0	752.8	744.4	994.6
	Camas (4)	45.2	31.2	22.6	21.9
	Mission Valley (8)	100.3	43.7	24.8	38.7
Clark Fork	Georgetown Lake	31.0	26.6	29.6	25.6
	Lower Willow Creek	4.9	1.6	2.3	1.7
	Nevada Creek	12.6	6.9	8.0	5.6
	Noxon Rapids	334.6	315.4	310.9	299.1
Bitterroot	Painted Rocks	31.7	---	---	17.4
	Como	34.9	14.6	---	13.6
MISSOURI					
Beaverhead	Lima	84.0	51.4	26.2	40.2
	Clark Canyon	257.2	165.0	160.1	137.9
Ruby	Ruby	38.8	27.6	---	27.7
Madison	Hebgen Lake	377.5	273.0	273.8	243.3
	Ennis Lake	41.0	30.7	31.6	35.4
Gallatin	Middle Creek	8.0	3.8	3.8	3.6
Missouri	Canyon Ferry	2,043.0	1,691.0	1,535.0	1,606.0
	Hauser & Helena	61.9	63.0	63.0	60.6
	Lake Helena	10.4	10.9	10.9	10.0
	Holter Lake	81.9	81.0	79.6	64.6
	Fort Peck Lake	18,910.0	15,640.0	14,100.0	15,370.0
	Smith River	10.6	8.6	7.3	7.2
Musselshell	Newlan Creek	12.4	8.7	10.1	---
	Bair	7.0	5.2	3.8	4.9
	Martinsdale	23.1	18.3	11.3	9.9
	Deadman's Basin	72.2	63.1	---	49.4
Sun	Gibson	99.1	61.8	50.3	44.6
	Willow Creek	32.2	24.2	23.8	21.8
Marias	Pishkun	32.0	19.9	19.6	16.4
	Lower Two Medicine	11.9	---	---	5.8
	Four Horns	19.2	---	---	13.1
	Swift	30.0	14.9	10.0	15.4
	Lake Frances	111.9	85.1	77.8	71.0
Milk	Elwell (Tiber)	1,347.0	693.7	491.8	538.9
	Beaver Creek	3.5	3.1	2.0	1.5
	Fresno	127.2	13.2	31.5	66.4
	Nelson	66.8	44.4	28.8	41.9
HUDSON BAY					
St. Mary's	Lake Sherburne	64.3	35.8	18.1	22.5
YELLOWSTONE					
Stillwater	Mystic Lake	21.0	3.9	3.1	7.2
Clark's Fork	Cooney	27.4	17.6	1.0	15.3
Tongue	Tongue River	68.0	18.4	18.5	37.0
Big Horn	Big Horn Lake	1,356.0	962.6	859.7	527.8

SATELLITE SNOW COVER



MISSOURI RIVER BASIN

DATE	Above Canyon Ferry Dam	
	PERCENT SNOW COVER	AVERAGE SNOWLINE ELEVATION IN FEET
November 14, 1982	81	5290
November 1982	96	4300
November 24, 1982	95	4380
December 24, 1982	100	3800
January 18, 1983	76	5540
January 25, 1983	71	5770
February 3, 1983	76	5540
February 24, 1983	72	5720



AGENCIES AND ORGANIZATIONS COOPERATING IN MONTANA SNOW SURVEYS

GOVERNMENT AGENCIES

Canada

Department of the Environment
Atmospheric Environment Service
Water Management Service
British Columbia Ministry of Environment
Inventory and Engineering Branch, Hydrology Section
Alberta Environment
Technical Services Division

Federal

Department of the Army - Corps of Engineers
Department of Agriculture - Forest Service
- Soil Conservation Service
Department of Commerce - National Environmental Satellite Service
- National Weather Service
Department of Interior - Bureau of Indian Affairs
- Fish and Wildlife Service
- Geological Survey
- National Park Service
- Bureau of Reclamation
Department of Energy - Bonneville Power Administration

STATE AGENCIES

Montana Conservation Districts
Montana Department of Fish, Wildlife and Parks
Montana Department of Natural Resources and Conservation
Montana State University - Agricultural Experiment Station
University of Montana - School of Forestry

PRIVATE ORGANIZATIONS

The Anaconda Company
Big Sky of Montana
Butte Water Company
Flathead Valley Community College
Montana Power Company

Other organizations and individuals furnish valuable information for snow survey reports. Their cooperation is gratefully acknowledged.